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(54) **METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MONITORING SERVICE USAGE**

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G06Q 30/04	(2012.01)
H04M 3/36	(2006.01)

(52) **U.S. Cl.**

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See application file for complete search history.

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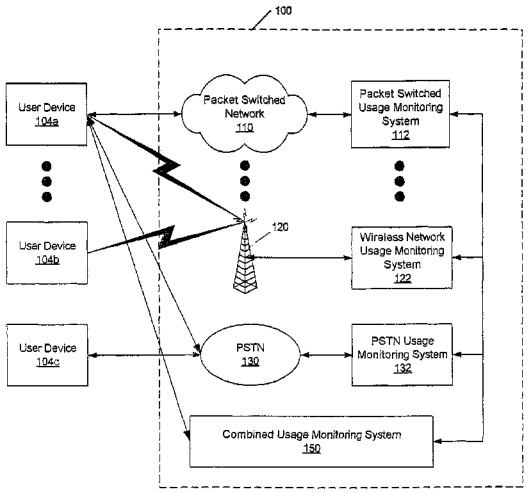
(57) **ABSTRACT**

Usage information is received that describes usage of communication services by a communications device. The usage information is compared to monitoring criteria. When the monitoring criteria are satisfied, an electronic notification message is sent to the communications device before an additional charge is incurred.

20 Claims, 3 Drawing Sheets



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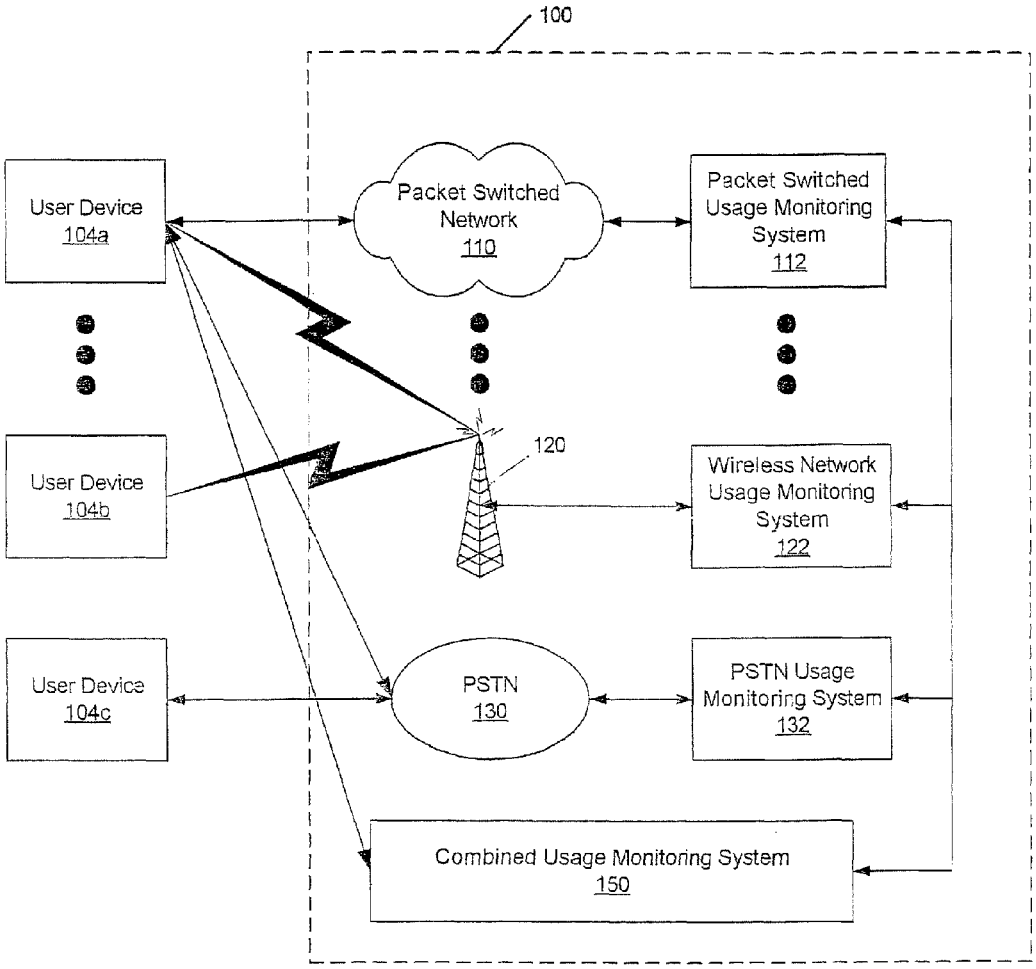

100
User Device
104a
User Device
104b
User Device
104c
Packet Switched
Network
110
Packet Switched
Usage Monitoring
System
112
120
Wireless Network
Usage Monitoring
System
122
PSTN
130
PSTN Usage
Monitoring System
132
Combined Usage Monitoring System
150

Figure 1

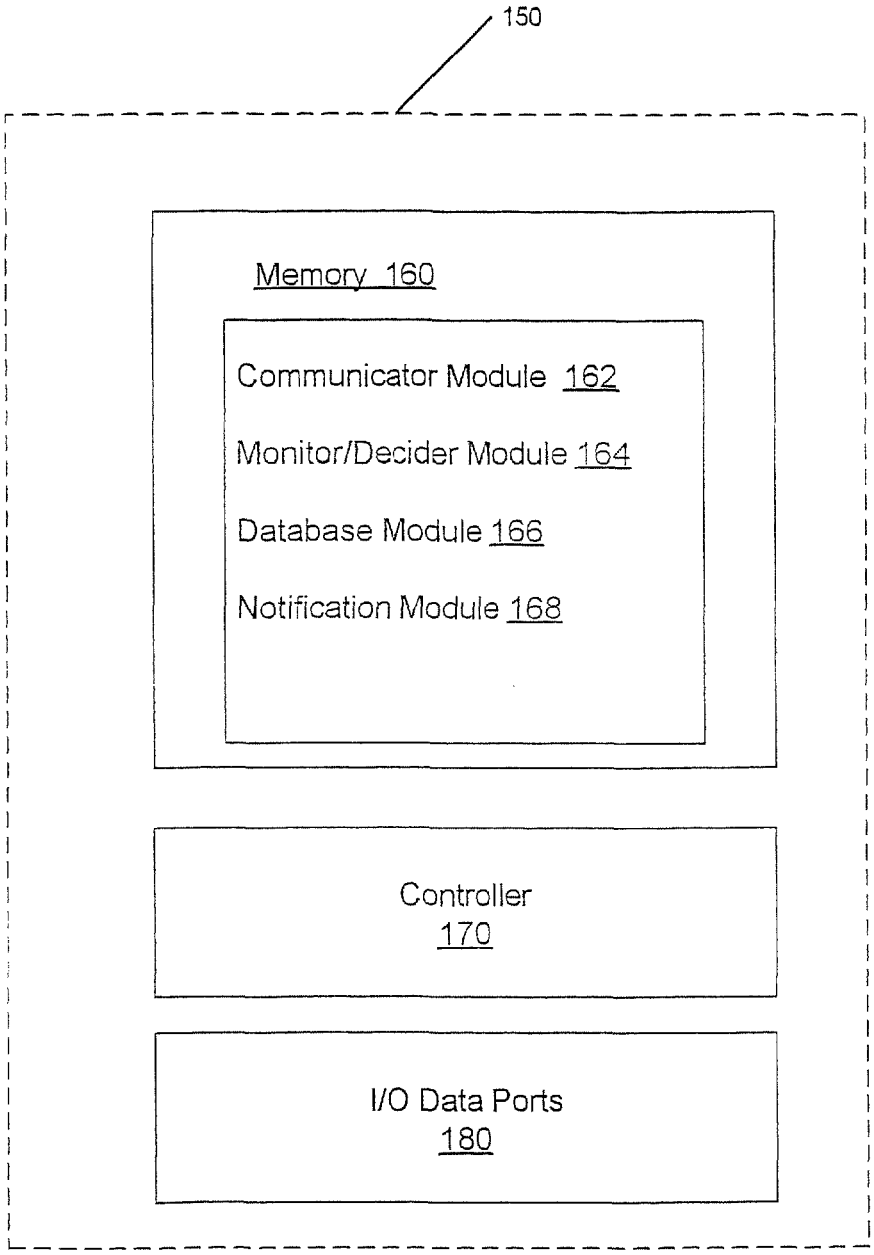

150
Memory 160
Communicator Module 162
Monitor/Decider Module 164
Database Module 166
Notification Module 168
Controller
170
I/O Data Ports
180

Figure 2

Figure 3

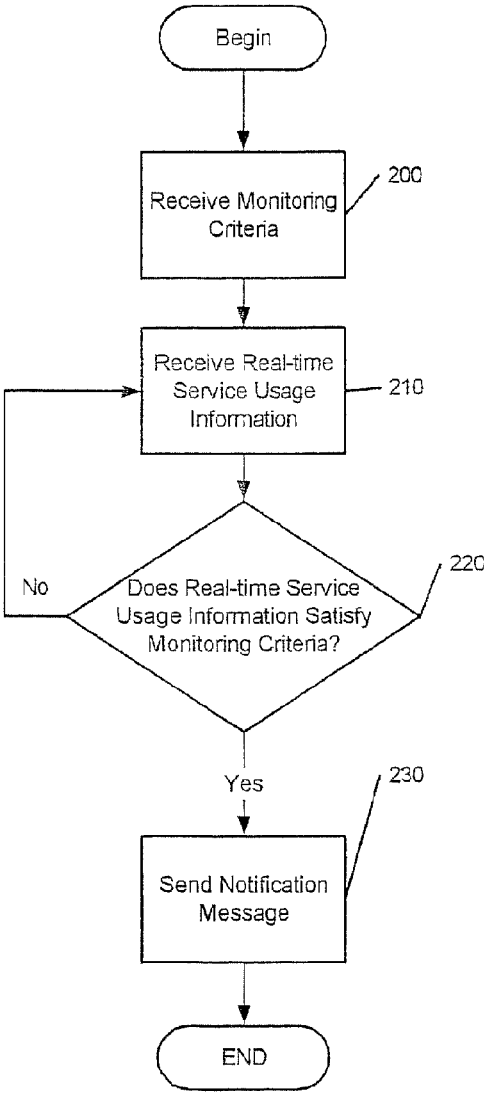
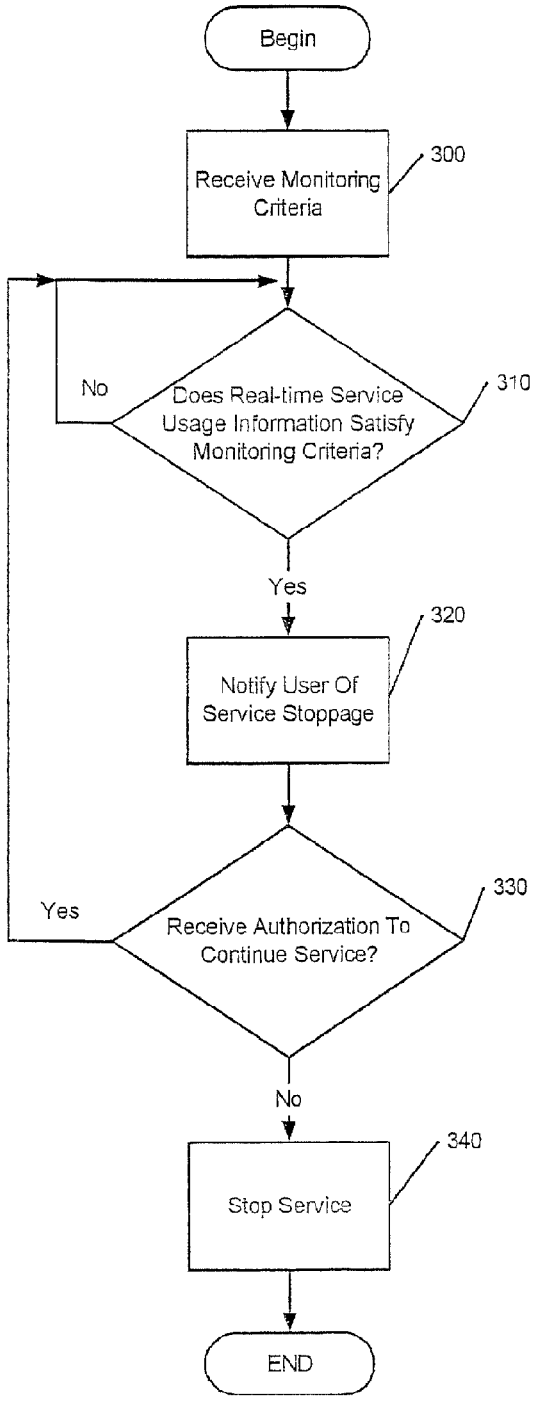


Figure 4



METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR MONITORING SERVICE USAGE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 13/227,509 filed Sep. 8, 2011 and since issued as U.S. Pat. No. 8,644,469, which is a continuation of U.S. patent application Ser No. 12/619,057 filed Nov. 16, 2009 and since issued as U.S. Pat. No. 8,036,351, which is a continuation of U.S. patent application Ser. No. 10/928,338 filed Aug. 27, 2004 and since issued as U.S. Pat No. 7,260,162, with all applications incorporated herein by reference in their entireties.

FIELD OF THE INVENTION

The present invention relates generally to data processing systems, and more particularly, to data services provided to a user.

BACKGROUND OF THE INVENTION

The present invention is described in greater detail in the following non-limiting Examples. Services, such as telecommunications or other data services, may be billed on a "pay-per-use" basis. For example, a customer may be charged a rate per minute for the use of long distance telephone service or an amount may be charged for a given number of minutes of use. Video or audio media may be obtained by a customer for a fee based on the quantity of the media that is received. Customers are typically billed periodically for such services, such as with monthly billing. In order to monitor the usage of a particular service, the customer may track the amount of service that he or she uses. If the customer does not track the amount of services used or is incorrect about the amount of services used, the customer may receive a bill for services that is larger than expected at the end of a billing cycle.

It may be difficult or inconvenient for a customer to accurately track how much service is being used. Customers may also receive several types of services through more than one communications system or service provider. The number of services received by a customer can add to the difficulty in tracking the monetary charges that the customer can expect at the end of a billing cycle. In addition, several members of a household or business unit may share the same billing account, and tracking usage by several different members of the household or business may require coordination between members that is difficult or not practical.

SUMMARY OF THE INVENTION

According to embodiments of the present invention, methods, systems, and computer program products provide monitoring of the usage of a plurality of services. In some embodiments, monitoring criteria corresponding to a usage quantity for at least one communication service is received. Service usage information for the service is received. The service usage information and the monitoring criteria are compared. An electronic notification message is sent when the monitoring criteria for one or more of the plurality of services is satisfied.

According to some embodiments of the present invention, monitoring criteria is received that corresponds to a usage quantity for a plurality of services. Each of the plurality of services is provided over ones of a plurality of different communication systems. Actual service usage information is received for the plurality of services. The actual service usage information and the monitoring criteria are compared. An electronic notification message is sent when the monitoring criteria for one or more of the plurality of services is satisfied.

As will further be appreciated by those of skill in the art, although described above primarily with reference to method aspects, the present invention may be embodied as methods, apparatus/systems and/or computer program products. Other systems, methods, and/or computer program products according to embodiments will be or become apparent to one with skill in the art upon review of the following drawings and detailed description. It is intended that all such additional systems, methods, and/or computer program products be included within this description, be within the scope of the present invention, and be protected by the accompanying claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a block diagram of systems according to embodiments of the present invention;

FIG. **2** is a block diagram of the combined usage monitoring system of FIG. **1**; and

FIGS. **3**-**4** are flowcharts illustrating operations according to embodiments of the present invention.

DETAILED DESCRIPTION

The present invention now will be described more fully hereinafter with reference to the accompanying drawings, in which illustrative embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numerals refer to like elements throughout.

According to some embodiments of the present invention, substantially real-time actual service usage information for a plurality of services can be monitored. The service usage information can be compared to monitoring criteria. The monitoring criteria can be a set of preferences and/or usage threshold levels. When the monitoring criteria for one or more of the services is satisfied, a notification message can be sent to the user. Accordingly, a plurality of services that may be provided over a plurality of different communications systems may be monitored. Notification that the monitoring criteria has been satisfied may be automatically sent to a user. Users of the provided services may receive information about the amount of services used to reduce the risk of receiving unexpected charges for services.

As will be appreciated by one of skill in the art, the present invention may be embodied as methods, systems and/or computer program products. Accordingly, the present invention may take the form of an entirely hardware embodiment, an entirely software embodiment or an embodiment combining software and hardware aspects all generally referred to herein as a "circuit" or "module." Furthermore, the present invention may take the form of a computer program product on a computer-usable storage medium having computer-usable program code embodied in the medium. Any suitable computer readable medium may be utilized including hard disks, CD-

ROMs, optical storage devices, a transmission media such as those supporting the Internet or an intranet, or magnetic storage devices.

The present invention is described below with reference to flowchart illustrations and/or block diagrams of methods, systems and computer program products according to embodiments of the invention. It will be understood that each block of the flowchart illustrations and/or block diagrams, and combinations of blocks in the flowchart illustrations and/or block diagrams, can be implemented by computer program instructions. These computer program instructions may be provided to a processor of a general purpose computer, special purpose computer, or other programmable data processing apparatus to produce a machine, such that the instructions, which execute via the processor of the computer or other programmable data processing apparatus, create means for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

These computer program instructions may also be stored in a computer-readable memory that can direct a computer or other programmable data processing apparatus to function in a particular manner, such that the instructions stored in the computer-readable memory produce an article of manufacture including instruction means which implement the function/act specified in the flowchart and/or block diagram block or blocks.

The computer program instructions may also be loaded onto a computer or other programmable data processing apparatus to cause a series of operational steps to be performed on the computer or other programmable apparatus to produce a computer implemented process such that the instructions which execute on the computer or other programmable apparatus provide steps for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

FIG. **1** illustrates systems according to various embodiments of the present invention. As illustrated, a data information system **100** includes a plurality of communication systems, such as a packet switched network **110**, a wireless communications network **120** and a public switched telephone network (PSTN) **130**. The packet switched network **110**, the wireless communications network **120** and the public switched telephone network **130** communicate with one or more user devices **104***a*-**104***c*, to provide various communications services. The packet switched network **110**, the wireless communications network **120** and the public switched telephone network **130** also communicate with a packet switched usage monitoring system **112**, a wireless network usage monitoring system **122**, and a PSTN usage monitoring system **132**, respectively. A combined usage monitoring system **150** is in communication with the monitoring systems **112**, **122**, and **132** and one or more of the user devices **104***a*-**104***c*.

Accordingly, information about substantially real-time actual service use by one or more of the user devices **104***a*-**104***c*can be monitored by the monitoring sytems **112**, **122**, and **132** and received by the combined usage monitoring system **150**. It should be understood that "real-time" actual service use includes information that is substantially or near real-time. The combined usage monitoring system **150** can include monitoring criteria, such as usage threshold amounts. The users of the user devices **104***a*-**104***c*may be notified by the combined usage monitoring system **150** when one or more of the monitoring criteria is satisfied.

Although the data information system **100** in FIG. **1** is illustrated with respect to the packet switched network **110**, the wireless communications network **120**, and the PSTN **130**, any one or more different communications systems may be used. Additional communication networks may also be provided. It should be understood that a single user device **104***a*may be used, or any number of user devices **104***a*-**104***c*may be used. The user devices **104***a*-**104***c*can communicate with one or more of the networks **110**, **120**, and **130**, the combined usage monitoring system **150**, and/or other ones of the devices **104***a*-**104***c*directly or indirectly via other devices, systems, or networks. Any suitable user device may be used for the user devices **104***a*-**104***c*, including mobile communications devices, desktop computers, landline telephones, modem-enabled devices, set top boxes, cable-enabled television sets, or other devices that can access a communications system. Mobile communications devices can include radiotelephones or other handheld devices, such as a personal wirelessly enabled digital assistants (personal data assistants (PDAs), such as Palm Pilot™ or a Pocket PC™), cellular telephones and/or data terminals, pagers, wireless messaging devices (such as a Blackberry™ wireless handheld device), laptop computers, wireless enabled laptop computers, other mobile communications devices and/or combinations thereof.

Usage monitoring systems, such as the packet switched usage monitoring system **112**, the wireless network usage monitoring system **122**, and the PSTN usage monitoring system **132**, can be configured to monitor usage of one or more services provided over one or more of the networks **110**, **120**, and **130**, respectively, to the user devices **104***a*-**104***c*. The services provided to the user devices **104***a*-**104***c*can include data services, such as network access services or media services that are accessible via a network. The services can include downloadable or streamlined electronic audio media, electronic video media, computer network services (e.g., Internet access or email), wireless computer network services, telephone services via a wireless network, video conferencing services, and/or telephone services via a PSTN. The usage monitoring systems **112**, **122**, and **132** can monitor one or more types of services provided via the corresponding networks **110**, **120**, and **130**.

Although the networks **110**, **120**, and **130** are illustrated in FIG. **1** as each having a corresponding usage monitoring system **112**, **122**, and **132** associated therewith, it should be understood that more than one usage monitoring system may be associate with a single network. For example, the packet switched usage monitoring system **112** can monitor the usage as an amount of access to the packet switched network **110** (e.g., the amount of time that a user is logged onto the Internet), and another usage monitoring system can monitor how much of a different service is used during the access period, such as how many audio or video files (e.g., MP3or JPEG files) are downloaded. Moreover, although the usage monitoring systems **112**, **122**, and **132** are illustrated as part of the data information system **100**, the usage monitoring systems **112**, **122**, and **132** can be carried out at least in part by one or more of the user devices **104***a*-**104***c*.

A single user can access several different communication services, including data services, from one or more of the devices **104***a*-**104***c*. Various services can be received at the same time. For example, a user can receive Internet access services at the device **104***a* and the user can download audio files via the device **104***a*using a different service while the device **104***a*is connected to the Internet. More than one of the devices **104***a*-**104***c*can be used at the same time. For example, a user could use one of the devices **104***a*-**104***c*(e.g., a computer) to access the packet switched network **110**, such as to view a webpage, at the same time as the user uses another one

of the devices **104***a*-**104***c*(e.g., a cellular telephone) to access the wireless communications network **120**, such as to conduct a telephone call.

More than one user can be associated with the same billing account and the services used by each of the users can be monitored. The cumulative services used by all of the users can be monitored and/or the service usage can be monitored for each of the users separately. The devices **104***a*-**104***c*may each be associated with a single user or the users may use the devices **104***a*-**104***c*interchangeably, for example, using a user identifier or account to identify which one of the users is using services. For example, one user could be receiving downloadable audio files over the packet switched network **110** from one of the devices **104***a*-**104***c*while another user could be sending electronic pictures over the wireless communications network **120** from another one of the devices **104***a*-**104***c*.

Communication services may be provided to one or more of the user devices **104***a*-**104***c*by one or more service providers. For example, a service provider may provide the user device **104***a*access to the packet switched network **110**. The service provider may, for example, provide Internet service via a digital subscriber line (DSL) or a cable modem. The amount of time that the user device **104***a*accesses the packet switched network **110** may be monitored by the packet switched usage monitoring system **112** as a measurement of service use. The user device **104***a*can obtain other services from the same or a different service provider during its access to the packet switched network **110**. For example, the user device **104***a*can access audio or video media (e.g., MP3and JPEG files) from a particular website provided by another service provider that provides this service over the packet switched network **110**. Another service provider may provide access to the packet switched network **110**. As described above, the usage of services via the packet switched network **110** can be monitored by the packet switched usage monitoring system **112** or by other usage monitoring systems.

As illustrated in FIG. **2**, the combined usage monitoring system **150** can be a data processing system that includes a memory module **160**, a controller module **170**, and I/O data ports **180**. The controller module **170** may be an operating system suitable for use with a data processing system, such as Windows95, Windows98, Windows2000, Windows NT, Windows ME, Windows XP from Microsoft Corporation, Cisco IOS, VxWorks, Unix, Linux, OS/2, AIX or System390, from International Business Machines Corporation, Armonk, N.Y. Although the controller module **170** is shown as separate from the memory module **160**, it is to be understood that it may be at least partially within the memory module **160**. The I/O data ports **180** can be used to transfer information between the combined usage monitoring system **150** the other usage monitoring systems **112**, **122**, and **132** and another computer system, a network, and/or a peripheral device such as a printer. These components may be conventional components such as those used in many conventional data processing systems and may be configured to operate as described herein.

The memory module **160** can include various modules for carrying out operations according to the present invention. As illustrated in FIG. **2**, the memory module **160** includes a communicator module **162**, a monitor/decider module **164**, a database module **166**, and a notification module **168**. The communicator module **162** can provide a user interface for receiving the monitoring criteria from an administrator or from a user. The monitor/decider module **164** can monitor the service usage. The notification module **168** can create and/or send a message, for example, via the communicator module **162** to the user when the monitoring criteria is satisfied. In some embodiments, the notification module **168** can send the notification when the user initiates a service, for example, before charges for services are incurred by the user. The database module **166** can store information, such as the monitoring criteria, set(s) of rules to be taken if monitoring criteria are met, and/or actual service usage information, e.g., as received from the usage monitoring systems **112**, **122**, and **124**.

Although the combined usage monitoring system **150** is illustrated in FIGS. **1** and **2** as being separate from the networks **110**, **120** and **130**, and the billing systems **112**, **122**, and **132**, operations performed by the combined usage monitoring system **150** can be performed at least in part by other modules in the networks **110**, **120**, and **130**, such as by one of the usage monitoring systems **112**, **122**, and **132**.

Operations according to some embodiments of the present invention are illustrated with respect to FIGS. **3** and **4**. Although such operations are described with respect to FIGS. **1** and **2**, it should be understood that any suitable device and/or system may be used to carry out the operations described herein.

With reference to FIGS. **1**-**3**, the combined usage monitoring system **150** can receive monitoring criteria corresponding to a usage quantity for a plurality of services (Block **200**). For example, the user can send monitoring criteria to the usage monitoring system **150**, such as from the user device **104***a*. The communicator module **162** of the monitoring system **150** can provide a user interface, such as a web page, through which the user can input the monitoring criteria. Each of the services can be provided over one of a plurality of different communication systems, such as various services received by the user device **104***a*through two or more of the packet switched network **110**, the wireless communications network **120** and/or the public switched telephone network **130**.

The combined usage monitoring system **150** can receive substantially real-time actual service usage information from a plurality of usage monitoring systems (Block **210**). For example, the monitor/decider module **164** and/or the database module **166** can receive substantially real-time usage information from the packet switched usage monitoring system **112**, the wireless network usage monitoring system **122**, and/or the PSTN usage monitoring system **132**. The monitor/decider module **164** can compare the real-time actual service usage information and the monitoring criteria to determine if the real-time service usage information satisfies the monitoring criteria (Block **220**). The notification module **168** of the combined usage monitoring system **150** can send a notification message when the monitoring criteria for one or more of the plurality of services is satisfied (Block **230**). The notification message can be sent to one of the user devices **104***a*-**104***c*, for example, by an email message, a text message (such as on a handheld wireless communications device or computer terminal, including "pop-up" windows), an audio indication within an ongoing telephone call, and/or a page to a pager device. The notification may be sent automatically without requiring an action by the user. Audio and/or visual notification messages may be used. In some embodiments, the notification message includes actual usage information for one or more of the services, and may indicate remaining balance(s) associated with an account. Multiple notification messages may also be sent. In some embodiments, a notification message may also be sent to a monitoring system or to a provider of a monitored service. Different notification messages may contain different information, and may be used for different purposes.

Any suitable monitoring criteria can be used. The monitoring criteria can be a threshold for an amount of service or

service charge, such as a number of per-use invocations (e.g., number of media files downloaded), a maximum monthly charge, a number of minutes of use, or an amount of data (e.g., bytes) transferred. In some embodiments, multiple threshold levels may be set; for example, a warning notification message can be sent at a lower threshold and service may be stopped at a higher threshold. The monitoring criteria may be defined as a value relative to another value, such as the previous usage of the customer during a selected billing period or averaged over a set of billing periods. As another example, the monitoring criteria for service used by one member of a household or business entity sharing an account can be a threshold amount set relative to the usage of another member. The monitoring criteria can also be based on a minimum or maximum rate or speed at which the services are used. The monitoring criteria can also take into account the amount of service being used during a particular period during a billing cycle. For example, the monitoring criteria can be a threshold that depends on the amount of time that has passed during the billing cycle. Thus, the monitoring criteria can be an absolute amount of service used or an amount that, for example, increases throughout the billing cycle. As a specific example, the monitoring criteria can be a threshold of a predetermined number of units of service accumulated and/or a predetermined number of units of service per day or week of the billing cycle. The monitoring criteria can include combined criteria for more than one type of service or threshold. The amount of services accumulated may be reset for each billing cycle. The monitoring criteria can be based on any definable mathematical formula which incorporates one or more of the above example types, in any useful combination.

In some embodiments, the monitoring criteria can be based on past usage patterns. The monitoring criteria can be divided by the billing period or sub-periods within the billing period. Each period or sub-period can be categorized and/or the service use during the period or sub-period. The periods and/or sub-periods can have different monitoring criteria. For example, if a user typically uses more services in the first week of the billing cycle and very few minutes in the last week of the billing cycle, then the monitoring criteria can correspond to the expected usage. Warning messages can be provided to give users notification when they are using services more rapidly, for example, based on the actual rate of service use.

The monitoring criteria can be an amount of usage for one or more of the users in a user group, such as a household or business unit that shares a billing account. In some embodiments, the monitoring criteria can be an amount of usage associated with one or more of the devices **104***a*-**104***c*. The devices **104***a*-**104***c*can be associated with particular users in the user group, for example, by being pre-configured to be so associated with a user or via other associations such as user identifiers and accounts. One or more of the users in the user group can be designated as an "administrative user." When services are used at one of the user devices **104***a*-**104***c*, the user device **104***a*-**104***c*can send an identifier to the appropriate usage monitoring device **112**, **122**, and **132**, and the service usage can be associated with a particular one of the user devices **104***a*-**104***c*, and/or a user that is assigned to the device. In some embodiments, the user can enter a user identifier so that the usage monitoring devices **112**, **122**, and **132** can assign the usage to a particular user. Thus, one user in a user group can use one or more of the user devices **104***a*-**104***c*, for instance by logging into their user account by entering their user identifier and/or password, or by authenticating themselves via other methods well-known in the art.

The combined usage monitoring system **150** can be programmed to accept changes to the monitoring criteria and/or to override an action triggered by the satisfaction of one of the monitoring criteria based on instructions from an authorized user, such as an administrative user in a user group. The administrative user can use a password or user identification, or other acceptable authentication method, to notify the combined usage monitoring system **150** that the instructions are authorized for acceptance.

The notification message can include information about the real-time actual service usage and/or the monitoring criteria. The substantially real-time actual service usage information can include information about a single user, a sum of the usage of a group of users, such as a group of users sharing the same account, or a sub-group of those users, or the individual usage amounts for a group of users. The actual usage information can include amounts for ones of the plurality of services or a sum of the usage corresponding to one or more of the services. The notification message can include a command or request for subsequent denial of service and/or notification of service stoppage.

The notification message can include information about actions that may be taken based on the satisfaction of the monitoring criteria. For example, the notification message can inform the user that one or more of the services may be discontinued or temporarily discontinued for a period of time. In some embodiments, a notification may be a request for a particular service provider to deny subsequent service usage with respect to a user group, sub-group, or individual user.

For example, as illustrated in FIG. **4**, the monitoring criteria is received, for example, by the combined usage monitoring system **150** (Block **300**). The monitoring criteria can include an instruction to stop services if the user uses more than a predetermined amount of service. If, for example, the monitor decider module **164**, determines that the real-time service usage information satisfies the monitoring criteria, e.g., by surpassing an amount of service use (Block **310**), then the notification module **168** sends a message to the user notifying the user that service will be stopped (Block **320**).

In some embodiments, the user (or one or more of the users in a user group) may have the authority to override a service stoppage. If the communicator module **162** receives authorization to continue services, then the service is not discontinued (Block **330**). If authorization is not received, then one or more of the services are discontinued (Block **340**). The services may be permanently discontinued, or services may resume after a period of time or at the beginning of the next billing cycle. The services may be stopped by automatically disabling a service account, or by transmitting a message or command to a service provider to stop providing services to the user.

Although the notification message is described herein as including information about actual service usage or service stoppages, other information may be included in the notification message. For example, advertisements or promotions for service billing plans may be automatically sent to selected users, such as users who exceed a threshold of service use or users who use below a threshold of service use. Users may also receive advertisements or promotions for additional services in the notification message. More than one notification message may be sent.

Other actions may also be taken if the actual service usage satisfies the monitoring criteria. For example, when the actual service usage reaches a threshold amount, the user may be temporarily or indefinitely moved to a new billing plan. Some service providers may provide services based on the amount of service used, e.g., a rate for some predetermined amount of

service and a higher or lower amount for service exceeding the predetermined amount. Thus, users may be charged different amounts based on a particular service billing plan. The user may be automatically moved to a new billing plan or the user may receive information regarding billing plan options that may be more economical based on the user's actual service.

In the drawings and specification, there have been disclosed certain embodiments of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being set forth in the following claims.

The invention claimed is:

1. A method, comprising:

receiving, at a computer from a network, different electronic usage information associated with a communications device that utilizes multiple services in a communications system;

combining, by the computer, the different electronic usage information for the multiple services into a combined usage;

comparing, by the computer, the combined usage to a monitoring criterion for incurring additional charges to an account associated with the communications device;

determining, by the computer, that the combined usage satisfies the monitoring criteria; and

sending, before the additional charges are incurred, an electronic message into the network for delivery to the communications device, the electronic message alerting of the additional charges.

2. The method of claim **1**, further comprising alerting that the monitoring criterion is satisfied.

3. The method of claim **1**, further comprising sending a text message to an identifier associated with the communications device.

4. The method of claim **1**, further comprising including the combined usage in the electronic message.

5. The method of claim **1**, further comprising including balance information in the electronic message.

6. The method of claim **1**, further comprising including data transferred in the electronic message.

7. The method of claim **1**, further comprising comparing the combined usage to a threshold.

8. The method of claim **1**, further comprising comparing the combined usage to one of multiple thresholds.

9. A system, comprising:

a processor; and

a memory storing instructions that when executed cause the processor to perform operations, the operations comprising:

receiving different electronic usage information associated with a communications device accessing multiple services in a communications system;

combining the different electronic usage information for the multiple services into a combined usage;

comparing the combined usage to a monitoring criterion for incurring additional charges to an account associated with the communications device;

determining the combined usage satisfies the monitoring criteria; and

sending, before the additional charges are incurred, an electronic message to the communications device that alerts of the additional charges.

10. The system of claim **9**, wherein the operations further comprise alerting that the monitoring criterion is satisfied.

11. The system of claim **9**, wherein the operations further comprise sending a text message to an identifier associated with the communications device.

12. The system of claim **9**, wherein the operations further comprise including the combined usage in the electronic message.

13. The system of claim **9**, wherein the operations further comprise including balance information in the electronic message.

14. The system of claim **9**, wherein the operations further comprise including data transferred in the electronic message.

15. The system of claim **9**, wherein the operations further comprise comparing the combined usage to a threshold.

16. The system of claim **9**, wherein the operations further comprise comparing the combined usage to one of multiple thresholds.

17. A memory device storing code that when executed causes a processor to perform operations, the operations comprising:

receiving different electronic usage information of a communications device accessing multiple services in a communications system;

combining the different electronic usage information for the multiple services into a combined usage;

comparing the combined usage to a monitoring criterion for incurring additional charges to an account associated with the communications device;

determining the combined usage satisfies the monitoring criteria; and

sending, before the additional charges are incurred, an electronic message to the communications device that alerts of the additional charges.

18. The memory device of claim **17**, wherein the operations further comprise alerting that the monitoring criterion is satisfied.

19. The memory device of claim **17**, wherein the operations further comprise sending a text message to an identifier associated with the communications device.

20. The memory device of claim **17**, wherein the operations further comprise including the combined usage in the electronic message.

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